PROCEEDINGS

OF THE

CALIFORNIA ACADEMY OF SCIENCES

FOURTH SERIES

VOL. V, NOS. 1 and 2, pp. 1–31 MARCH 26, 1915

I

Report of the President of the Academy for the Year 1914

BY

C. E. GRUNSKY

President of the Academy.

II

Report of the Director of the Museum for the Year 1914

BY

BARTON WARREN EVERMANN

Director of the Museum.

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I.

REPORT OF THE PRESIDENT OF THE ACADEMY FOR THE YEAR 1914

By C. E. GRUNSKY
President of the Academy

MEMBERSHIP

The present total membership in the Academy is 447, made up of:

Honorary Members	30
Life Members	83
Resident Members	334

During the year 1914 there was an accession of 10 new members, and the Academy lost by death 10, by resignation 37, and by being dropped for arrearages in dues, 11. The net loss in membership during the year has been 48.

The losses by death were:

W. C. Barnard	Resident Member	June 5,	1914
Prof. Samuel B. Christy	Life "	November 30,	"
F. W. Dohrmann	Resident "	July 18,	"
Chas. Fuchs	" "	June 11,	"
Dr. Theo. N. Gill	Honorary "	September 25,	"
Prof. E. S. Holden	Life "	March 16,	"
C. A. Hooper	Resident "	July 12,	"
John H. W. Husing	" "	January 31,	"
Thomas Magee	" "	May 30,	"
J. G. Spaulding	" "	March 29,	"

DONATIONS

The donations to the Museum during the year have been many and valuable, and presage what may be expected when adequate housing facilities are provided. A detailed list of the accessions to the Museum is given in the appendix to the Director's report. Attention may here be called to a few of the more notable donations and accessions.

SPECIAL ACCESSIONS TO THE MUSEUM AND ACADEMY'S EQUIPMENT

1. Through the generosity of Mr. Wm. M. Fitzhugh, of San Francisco, the Academy has received as a loan deposit the entire collection of Indian baskets, pottery, blankets, and miscellaneous objects, assembled by the late Professor and Mrs. T. S. C. Lowe of Pasadena, Cal. This collection comprises 1430 baskets and more than 300 pieces of pottery and other objects of Indian manufacture or use.

Mr. Fitzhugh has generously offered to meet all the expenses of installing these collections in the Museum in the most approved cases, and all expenses incident to the proper labelling and cataloguing of the specimens.

It is easy to see that this will make one of the most attractive exhibits in our new Museum building.

2. At the instance of Mr. Otto von Geldern, Mr. Thomas Davidson, son of the late Professor George Davidson, long an active member and sometime President of the Academy, has generously donated to the Academy a large collection, comprised in 24 large boxes, of minerals and other geological specimens.

3. Mr. Chas. E. Green, member of the Board of Trustees, donated to the Academy a Beck binocular microscope with eleven objectives (ranging from 4 inch to 1/25 inch), several eye pieces, and numerous accessories. The original cost of this microscope was over $1000. Although not a modern instrument it is nevertheless valuable.

4. Dr. Robert E. Coker, Director of the United States Bureau of Fisheries Biological Station at Fairport, Iowa, and acting for the Bureau, has donated to the Academy a collection of Unionidæ or freshwater mussels containing 423 speci-

mens, representing 116 species, or practically all the species occurring in North American waters.

5. Perhaps the most important gift which the Museum has received within the year is that of the Henry Hemphill collection of marine, freshwater and land shells, presented to the Academy by Mrs. Charlotte Hosmer, daughter of Mr. Hemphill.

This collection contains between 60,000 and 70,000 specimens representing 12,000 to 15,000 different species. Dr. Wm. H. Dall, the most distinguished conchologist in America, if not in the world, has pronounced it to be without doubt "the best and most complete collection of Pacific coast shells - - - - that is to be found anywhere except in the National Museum" at Washington.

The making of this immense collection engaged the attention of Mr. Hemphill during practically all the years of his long and useful life.

The collection has been formally turned over to the Academy and is now stored in 20 large boxes in the rear room on the third floor of the Security building, 343 Sansome street.

6. A collection of 34 mounted specimens representing 24 species of winter birds of Marin County, California, presented by Mr. John W. Mailliard, of the Board of Trustees. These are meant to serve as a beginning of a series of seasonal groups of birds which it is hoped will be installed in the Museum soon after the completion of the building.

7. A collection of 17 bird skins obtained by Mr. John Rowley in Kern County in October and November. Among these are two specimens of the ferruginous hawk, a very rare species.

8. Two fine specimens of the Javanese peacock, presented by Mr. Lansing K. Tevis, of San Francisco.

9. A collection of 56 mammal skins obtained by Mr. Rowley in October and November in Kern County, Cal.

10. During the year there have been added to the collections of the department of herpetology a total of 806 reptiles and amphibians. Of these, 105 resulted from exploration in Arizona and California by John I. Carlson, 248 by gift from various parties, and 453 by exchange.

11. The large collection of beetles belonging to the late Charles Fuchs, for many years the Academy's assistant curator of entomology, has been deposited with the Academy by Mrs. Fuchs, and an effort is being made to secure funds for its purchase.

The additions to the herbarium have been many and important, representing hundreds of specimens among which are many genera and species new to the herbarium. Among the most important additions may be mentioned the following:

12. A collection of 278 specimens representing 28 genera and 75 species of ferns chiefly from Massachusetts and the vicinity of Washington, D. C., donated by Mr. H. W. Henshaw of Washington, D. C.

13. A very large collection, especially rich in willows, made by Miss Eastwood in the Yukon region during the spring and summer of 1914.

14. Considerable collections of plants made by Miss Eastwood in March in Kern, Tulare and Contra Costa counties, California.

15. Large miscellaneous collections sent in from time to time by Mr. L. E. Smith, from the upper Sacramento Valley.

16. Numerous specimens, chiefly exotics, have been donated from time to time by Mr. G. P. Rixford.

17. Large collections of Japanese and Chinese plants have been received from Dr. Fred Baker and Mrs. Charlotte Baker, of San Diego, Cal.

18. A great many specimens adding many families, genera and species to the herbarium, have been received from the Director of the Philippine herbarium.

Miss Eastwood, the curator of botany, has been indefatigable in receiving and caring for the collections. In mounting the specimens, she has received great assistance from Mrs. Marian L. Campbell who has most generously given to the herbarium a day or more of her time nearly every week during the fall and winter.

Miss Eastwood conducts a botanical club of about 50 members which meets usually about once a week. She also meets once a week with the park gardeners and gives them instruction regarding the plants under their care. This is educational work of real value and should be encouraged.

ACCESSIONS TO THE LIBRARY

There have been the usual accessions to the library resulting from purchase, subscriptions to periodicals, and from exchanges. There have also been many donations as set forth in the appendix to the Director's report. Only a few of the more important donations will be mentioned here.

1. A collection of about 200 volumes and pamphlets from the late Professor William Eimbeck, received through Captain Ferdinand Westdahl of the United States Coast and Geodetic Survey.

2. Through the courtesy of Senator Geo. C. Perkins the library now receives regularly the Congressional Record, as issued.

3. The Director has presented to the library a bound set of the Proceedings of the Washington Academy of Sciences. This set comprises Volumes I-XIII, and is complete.

4. Mr. Horace Davis has presented to the library a complete original set of the publications of the Academy. The volumes are handsomely and substantially bound and constitute the most perfect set of the Academy's publications which it possesses.

5. A large number of pamphlets from the Gray Herbarium, among them many of the papers by Professor Asa Gray and Professor Sereno Watson.

6. Thirty-one numbers of the Journal of Morphology, from the Wistar Institute.

7. About 40 early numbers of the Proceedings of the California Academy of Sciences from Professor W. G. Farlow.

PUBLICATIONS

The Academy has published during 1914 five papers: One is No. X (Proc., 4th Ser., Vol. II, Part 1) of the series relating to the Expedition to the Galapagos Islands, and the other four are in continuation of Vol. IV, Fourth Series of the Proceedings, as follows:

The Gigantic Land Tortoises of the Galapagos Archipelago. By John Van Denburgh. Fourth Series, Vol. II, No. X, pp. 203-374, plates 12-124. Published September 30, 1914.

Report of the President of the Academy for the year 1913; and George Davidson. Fourth Series, Vol. IV, Nos. I and II, pp. 1-13. Published April 8, 1914.

Neocene Record in the Temblor Basin, California, and Neocene Deposits of the San Juan District, San Luis Obispo County. By Frank M. Anderson and Bruce Martin. Fourth Series, Vol. IV, No. 3, pp. 15-112, plates 1-10. Published December 30, 1914.

The Fauna of the Siphonalia sutterensis Zone in the Roseburg Quadrangle, Oregon. By Roy E. Dickerson. Fourth Series, Vol. IV, No. 4, pp. 113-128, plates 11 and 12. Published December 30, 1914.

Reptiles and Amphibians of the Islands of the West Coast of North America. By John Van Denburgh and Joseph R. Slevin. Fourth Series, Vol. IV, No. 5, pp. 127-152. Published December 30, 1914.

The Pocket Gopher of the Boreal Zone on San Jacinto Peak. By J. Grinnell and H. S. Swarth. Fourth Series, Vol. IV, No. 6, pp. 153-160. Published December 30, 1914.

The Academy also published on December 30, 1914, Title page and Contents, Vol. I, Mathematics-Physics, Third Series; Title page, Contents and Index, Vol. II, Geology, Third Series; Title page, Contents and Index, Vol. IV, Zoology, Third Series; Title page, Contents and Index, Vol. I, Fourth Series; and Title page, Contents and Index, Vol. III, Fourth Series. These complete in this respect all the volumes to date.

LECTURES

During the year 1914, 19 free lectures have been delivered at the stated meetings of the Academy, as follows:

FEBRUARY 2. "Poisonous reptiles of the Pacific Coast."
Dr. John Van Denburgh, Curator of Herpetology.

FEBRUARY 12. "Necessity for care in the determination of type specimens."
Bruce Martin, Asst. Curator of Invertebrate Paleontology.

MARCH 2. "Fertilization of the Smyrna Fig."
G. P. Rixford.

MARCH 16. "The last appearance of the Leonids."
C. E. Grunsky, President of the Academy.

APRIL 6. "Specialization in the Protozoa and suggestions of Metazoan Origin."
Prof. C. A. Kofoid, University of California.

APRIL 20. "Origin of petroleum."
F. M. Anderson, Curator of Invertebrate Paleontology.

MAY 4. "Geological history of California."
Dr. John Perrin Smith, Stanford University.

MAY 18. "Myths and songs of the Sierras."
Edward W. Gifford, University of California.

JUNE 1. "Effect of a strictly vegetable diet on certain animals."
Dr. J. Rollin Slonaker, Assistant Professor of Physiology, Stanford University.

JUNE 15. "The Alaska fur-seal herd and its proper management."
Dr. Barton W. Evermann, Director of the Museum.

JULY 6. "Status of California's duck population."
Dr. Harold C. Bryant, Assistant Curator of Birds, Museum of Vertebrate Zoology.

JULY 20. "Present conditions and future need of California's wild life."
Dr. Walter P. Taylor, Curator of Mammals, Museum of Vertebrate Zoology.

AUGUST 17. "Some experiences in Alaska".
Alice Eastwood, Curator of Botany.

SEPTEMBER 21. "Life history of the edible crab."
Dr. Frank W. Weymouth, Assistant Professor of Physiology, Stanford University.

OCTOBER 5. "Life of cells outside the body."
Dr. S. J. Holmes, Professor of Zoology, University of California.

NOVEMBER 16. "The census of the fur-seal herd."
Geo. A. Clark, Academic Secretary, Stanford University.

DECEMBER 7. "Summer on the Forrester Island, Alaska, bird reservation."
Dr. Harold Heath, Professor of Zoology, Stanford University.

DECEMBER 21. "Recent progress in determining the motion of bodies of the Solar System."
Dr. A. O. Leuschner, Professor of Astronomy, University of California.

THE DIRECTOR OF THE MUSEUM

The Academy has been fortunate in securing the services of Dr. Barton W. Evermann, who early in the year was appointed Director of the Museum to fill the vacancy caused by the resignation of Mr. G. P. Rixford. He came to us from

Washington, D. C., but not as a stranger, he having at one time been a resident of California and having in recent years had official duties on this coast by reason of his connection with the U. S. Bureau of Fisheries in various capacities since 1891, and in charge of the Alaska Fisheries Service since 1910. He has already rendered valuable service to the Academy and will have an enlarged field of usefulness when the Academy's new building in Golden Gate Park becomes available.

THE NEW MUSEUM BUILDING

A year ago it was confidently expected that this new building would be completed before the close of 1914. This has not been realized. It was found during the progress of construction that the principal contractors were not using the full amount of cement called for by their contract, that certain undesirable modifications of the specifications had been orally assented to by the agents of the Academy and that in consequence of these circumstances there was some doubt relating to the wisest procedure to remedy the resulting structural defects in the building. The complications resulting from this situation have interfered with the progress on the building. The matter is not yet finally adjusted but it is expected that a course of procedure will soon be determined on resulting in proper protection of the Academy's interests.[1]

GENERAL ACTIVITIES

The work done in the various departments under direction of the curators of these departments will be set forth in the reports of the Director of the Museum and of the curators, and needs no special comment in this report, except to state that the earnest and able work being done is gratifying and deserves the encouragement of this community, of the State, and of the entire Pacific slope. The field in which the Academy is active is large. The Academy is in need of funds for better covering this field and for extending its usefulness.

It is gratifying, therefore, to be able to give special acknowledgment to such donations as the valuable Henry Hemphill collection of shells and the loan of the Fitzhugh Collection of

[1] Since the above was written all these matters have been adjusted, building operations have been resumed, and it is now believed the building will be completed early in July.

Indian baskets and stone implements, which latter will be placed in the new building and properly displayed without cost to the Academy.

But the time is ripe for a proper and adequate endowment for the work which the Academy has in hand. There is immediate need for a fund of about $1,000,000 to enlarge the new building in the Park to its intended ultimate dimensions and to provide for a proper display of the material which is available in abundance, and which will quickly find its way to such a building when it becomes known that attractive housing facilities have been provided.

A commission which the Curator of the Department of Botany, Miss Alice Eastwood, received, to make a study and collection of willows in Alaska, resulted in a trip by her last spring of which she has given an interesting account at one of the stated meetings. A large addition of Alaskan flora to the Herbarium of the Academy, is to be noted in this connection.

The Curator of the Department of Invertebrate Paleontology, Mr. F. M. Anderson, is at present away on a year's leave of absence in South America on private business and has taken with him Mr. Bruce Martin. His stay in South America will no doubt result in benefit to the Academy's collections as he has requested and is receiving some financial aid in making collections for the Academy.

The place made vacant by the resignation of the Assistant Curator, Mr. Bruce Martin, has been filled by the appointment of Dr. Roy E. Dickerson.

Death has claimed Mr. Chas. Fuchs who was for many years Assistant Curator and an able worker and diligent collector in the Department of Entomology. The private collection of Mr. Fuchs has been added to the Museum where it is being stored and cared for until otherwise disposed of. In his death the Academy has sustained a distinct loss. No one has yet been appointed to take his place.

The preparation of material for display exhibits has been continued throughout the year and it is along this line—measured by the cost of the work—that the Academy has been most active. This will appear more fully in the report of the Director.

In conclusion, on behalf of the officers of the Academy, I desire to express their gratification in the interest manifested by so many of the members and in the cordial effort put forth to advance the best interests of the Academy, which continues, as in the past, to devote itself to the education of our people along lines of natural history, science and related matters.

I desire to extend to the officers of the Academy thanks for their able and cordial cooperation in Academy affairs and for the many personal sacrifices which they have been called on to make on behalf of the Academy.

II

REPORT OF THE DIRECTOR OF THE MUSEUM FOR THE YEAR 1914

By Barton Warren Evermann
Director of the Museum

The appointment of the present Director of the Museum of the California Academy of Sciences became effective March 15, 1914. Before coming west he took the opportunity, with the permission of the Council, to visit a number of museums in the east, namely: the American Museum of Natural History in New York, the Museum of the Brooklyn Institute of Arts and Sciences, the Children's Museum in Brooklyn, the Field Museum of Natural History in Chicago, the Museum of the Chicago Academy of Sciences, and the Milwaukee Public Museum. Although already quite familiar with the United States National Museum at Washington, in which institution he had served as honorary curator of the Division of Fishes for a number of years, he devoted several days in the early part of March to a study of methods of caring for collections and installing exhibits, of the types of cases used in the different departments, the methods of museum bookkeeping, and many other matters relating to the administration of the affairs of that institution.

In all the institutions visited special atttention was given to the educational work which they are doing, and it is believed that much information and many suggestions were obtained which will prove of value to this Academy in the development and management of its Museum.

At the time of the director's arrival in San Francisco, construction work on the new Museum building of the Academy in Golden Gate Park was well under way, and it was confidently believed the building would be ready for occupancy certainly by the beginning of the year 1915. In anticipation of this probability, the Director at once began giving consideration to various matters pertaining to the transfer of the Academy's collections, library and offices, to the new building, and their proper installation therein. Consideration had to be given to many things, among which a few may be mentioned: The available space and its best allotment; provision

for proper lighting, heating and ventilation; provision for proper telephone service; type and arrangement of cases for exhibition groups and specimens, and for research collections; details of arrangement and equipment of lecture room and laboratories; type of book stacks and furniture for library and offices; and the details of many other matters of pressing importance preliminary to the installation of a museum in a new building and the making of provision for its expected growth. All of this required much time and thought.

Through the failure of the concrete and brick contractors to comply with the specifications in their contract, it became necessary to stop the construction work temporarily. This was done on July 13, and building operations have not yet[1] been resumed. It seemed best to defer further action in the selection of cases, book-stacks, and other furnishings until the present building embarrassment has been overcome.

Although those matters are at a temporary standstill, the Academy has not been idle. For details concerning the activities of the respective departments of the Museum reference is made to the formal reports of the curators. It is proper to call attention at this time to some of the special activities which have engaged the attention of the Museum force.

SPECIAL ACTIVITIES

1. Early in the spring a proposition was received from Messrs. Miller and Lux to turn over to the Academy, free on board the cars at Buttonwillow, Kern County, Cal., such of the California Valley elk as they might be able to catch from the herd which roams over their Kern County ranch, if the Academy would place them in suitable large Federal, State, and private reservations and parks in the state.

Realizing that under existing conditions this important species of big game is seriously threatened with extermination, and being desirous of assisting in preserving the species, the Academy accepted the offer. Considerable time and attention were given to the matter during the summer and fall. Communications were addressed to the superintendents in control of the Federal and State reservations, and to owners of large

[1] January 4, 1915. Since the above was written the building difficulties have been adjusted, construction work has been resumed, and it is now (March 18) believed the building will be ready for occupancy early in July.

private reservations, parks, and ranches in the state, also to the park commissioners and the Lodges of Elks in all the cities of the state, for the purpose of learning whether they wished any of the elk for the reservations or parks under their control.

It was explained to them that these elk were in great danger of extermination; that Messrs. Miller and Lux were desirous of doing anything in their power to save the species; that the Academy of Sciences is cooperating with Miller and Lux with that object in view; that it is desired to place the elk only in such places as will afford a favorable environment in which the animals will breed and thrive; and that the only expense to those wishing any of the elk would be the freight charges and other expenses incident to shipment, and $3 dollars per head to meet the expense of clerical work.

The response was immediate. Approval of the proposition was universal. Applications for elk were received from many parts of the state. In order that the elk might be placed only in favorable locations the Director through the courtesy of the Southern Pacific and Santa Fe railroads, was able to visit and personally inspect more than twenty of the proposed reservations and parks, and only those thought to furnish a suitable environment were selected to receive shipments.

Early in October, Messrs. Miller and Lux began preparations for capturing the elk. The plan involved the construction of a corral a quarter of a mile long and half as wide in a large alfalfa field to which it was observed the elk came regularly every night to feed. The corral was built of heavy timbers 12 feet high upon which was placed heavy woven fence-wire nine feet high. A wing one-fourth mile long was run out from each side at the corral entrance. The wire was placed on the wings at once but not on the corral proper until the elk had visited the field several nights and had become quite used to the posts, which they did very promptly. Then the wire was put in place everywhere except at the entrance, and on the night following, after about 150 elk had entered the corral, the wire was put in place across the entrance and the elk were trapped. The next day they were quite restless and about 90 of them broke out. About 60 remained and in a few days became so tame that it was safe to undertake their

capture and transfer to the cattle pens at the railroad station a Buttonwillow.

The actual catching, however, was attended with many difficulties and uncertainties. Two escaped by clearing an eight and one-half foot fence. They came nearer flying than was believed possible for such animals.

In spite of all difficulties, 54 elk were successfully shipped to the following:

	No.
One thousand acre reservation in the Santa Monica Mountains, owned by Mr. J. M. Danziger of Los Angeles	6
Six hundred and forty acre reservation in the Santa Monica Mountains, owned by Mr. E. L. Doheny of Los Angeles	10
San Diego City Park	12
Private reservation of several hundred acres adjoining the city park at Riverside, and owned by Mr. S. C. Evans of that city	4
Modesto City Park	2
California Redwood Park Association, Boulder Creek	10
Del Monte Park, Seventeen-mile Drive, Monterey	10

Not a single loss occurred during shipment.

Reports recently received from these various places state that the elk promptly adapted themselves to the new environment and that they are doing well. It is confidently believed that these elk will reproduce in practically all of these reservations and that ever-increasing herds will result.

The Academy has unfilled orders for about 100 additional head. It is the intention of Messrs. Miller & Lux to undertake the capture of more elk next fall, and it is hoped that all unfilled orders may be supplied.

The degree of success that will be attained can not, however, be predicted; the uncertainties are many and various. In the first place, Miller & Lux may fail in their attempt to capture the animals. And then, even after having been captured, they may break out of the corral; they may escape when being transferred from the corral to the cattle pens; they may break out of the cattle pens; or kill themselves by fighting with each other; or escape when being loaded into the cars; or injure

each other in the cars while in transit; or escape or suffer injury when being unloaded.

The experience of the last season will prove very profitable, however, and it is believed that the undertaking next season will be attended with even a greater measure of success.

2. During the spring and summer, the curator of botany, Miss Eastwood, spent several months on a collecting trip in Alaska and the Yukon Territory, and brought back large and very valuable collections of plants, particularly of willows. The details are set forth in Miss Eastwood's formal report.

3. The curators and assistant curators have been diligent in arranging, cataloguing, caring for, and studying the collections in their respective departments. The inadequate quarters which the Academy now occupies make it impossible to properly arrange the collections, and any study of them is almost impossible.

4. The department of mammalogy has made commendable progress with the preparation of the exhibition groups which are to be installed in the new museum building.

The main exhibition hall of the new building is to be devoted to the large California mammals and the more interesting of the smaller species. This hall will accommodate 10 large habitat groups each 25 feet long, and with a 15-foot plate glass front. There will also be room for 20 smaller habitat groups of the smaller California mammals. The rear exhibition hall will have space for six large habitat groups and 12 small groups of the same size and general character as those in the main hall.

The curator of mammals reports that his taxidermists and preparators now have completed and ready to instal in the new building the following large mammal groups: Black-tail Deer, four seasonal groups,—spring, summer, autumn and winter; California Mule Deer; California Valley Elk; Desert Mountain Sheep; California Antelope; Black Bear; California Mountain Lion; California Sea Lion; Steller's Sea Lion; Leopard Seal; Galapagos Gigantic Tortoise; Farallon bird group; Los Baños bird group; and California coast bird group. These and others in preparation will more than fill the proposed available space.

These groups should be installed as rapidly as possible after the completion of the building. It is believed they will prove a great attraction and indicate to the public that the museum is an educational institution.

CARE OF COLLECTIONS

All the collections of the Academy have been regularly and carefully inspected with reference to possible danger from insect pests or other causes.

The mammal, bird, and insect collections were inspected in the summer and again in the fall, and found in satisfactory condition. The materials for the large bird groups were examined in December and found to be in excellent condition. These materials have been transferred from Berkeley to a basement room in the Security Building at 343 Sansome Street. The room is a better one than that in which the collections were previously stored and costs nothing for rent.

MUSEUM PERSONNEL

Some changes have taken place in the personnel of the Museum.

Mr. Frank M. Anderson, curator of the department of invertebrate paleontology was granted leave of absence May 1, 1914, to permit him to engage in certain economic work in South America in the interest of an oil company.

Mr. Bruce Martin, assistant curator of the department of invertebrate paleontology, resigned on May 1 to accompany Mr. Anderson to South America, and Dr. Roy E. Dickerson was appointed to the vacancy caused by Mr. Martin's resignation, effective August first.

Mr. Chas. Fuchs, for many years the assistant curator of entomology, died June 11, 1914. Mr. Fuchs had served the Academy long and faithfully. His skill as a preparator of entomological specimens was unsurpassed. His enthusiasm and his pleasant, unaffected disposition endeared him to all with whom he was associated. In his death the Academy suffers a real loss.

ACCESSIONS TO THE MUSEUM

Although the Academy conducted no extensive field investigations during the year, the additions to the Museum have nevertheless been many and important. Most of these have been in the nature of donations by friends of the Academy. A detailed list will be found in an appendix to this report. Attention is called in the President's report to a few of the more important accessions.

THE MUSEUM

As already stated, because of the failure of the concrete and brick contractors to comply with their contract, the completion of the new Museum building has been delayed several months. It is believed, however, that the difficulties will soon be adjusted, that construction work will be resumed within a short time, and that the building will be ready for occupancy in the near future.

In the meantime, it is proper to consider some of the problems which will confront us when we are actually in the new building.

With the completion of the new Museum building, the Academy will enter upon a new era. It will then have an opportunity to develop its Museum along what it regards as the most proper lines. The first important question that must be considered is that of policy. What shall be the scope of the Museum's work? What shall be its ideals and its aims? How can its ideals and aims be realized?

These questions are so vital that I feel that I should take this opportunity to touch briefly upon them.

Chiefly through the efforts of Mr. Loomis, assisted by President Grunsky and Judge Hittell, the property of the California Academy of Sciences was exempted from taxation by a constitutional amendment. That action by the people of the State placed an obligation on the Academy, an obligation to every person in the state. The Academy must do something for the people of San Francisco and the state in return for what the state has done for it.

When the Academy gets into the new building it will then be in a position to do many things; there will be many things

it will wish to do; there will be many things it must do; there will be many problems it must then meet. The time is opportune for consideration of some of those problems.

The first question to consider is the large and fundamental one as to the general policy of the Museum.

The character or type of museum which the Academy wishes to maintain must be determined. Along what lines shall its principal activities lie? How can it do the most good as a scientific, educational institution?

The one thing that will impress one most in a study of eastern museums is their activity along educational lines, and the ways in which they are endeavoring to interest the public, and to be of service to the public.

It is apparent that the museums of the east are beginning to realize more and more that they owe a debt to the public and to those who have made their existence possible. Until recently most museums have done little or nothing in respect to general education. "They have been content to be merely vast depositories for collections of priceless value, either unseen or gazed upon in mute wonder by those who visited them."

In such museums the visitors "wander listlessly and aimlessly about the halls and galleries, with little appreciation and scarcely any understanding of the treasures that surround them."

But a great change has come about within the last few years. Now, the museum has come to regard itself, and to be regarded by the public, as an educational institution, working in cooperation with the public and private schools for the good of all the children who can be brought under its influence. It is now realized that a public museum, in order to justify its existence, must be of real service, not only to investigators, but to the general public, as well.

To meet the needs of the investigator, the museum must be an institution for research, an institution for the acquirement of knowledge and its diffusion among men. A museum furnishes facilities for research and the acquirement of knowledge through, and in proportion to the completeness of, its research collections, and the encouragement it gives to field and laboratory investigations. The knowledge acquired by

its investigators through field investigations and laboratory study of specimens is made known to the world chiefly through the medium of the museum's publications.

This important function of the museum has been admirably performed by the California Academy of Sciences. Its publications have always been of a high order of excellence, and through them the Academy is well and favorably known throughout the scientific world. This function of the museum must not be neglected; research must be encouraged in every proper way.

The second function of a public museum is that of usefulness to the public in an educational way. Not until recently has this function been realized or received much atttention, but now it is the dominant and controlling thought in many of our greatest museums.

It is true that most museums, from the very beginning, have maintained considerable collections of natural history objects, and specimens in other groups, which the visitor might see; but, as Director Lucas of the American Museum of Natural History has so well said, "The visitor was greeted by row upon row of animals, most literally stuffed, arrayed in ranks and accompanied by labels whose principal mission was to convey to the public what to them is a most unimportant matter, the scientific names."

Shall our Museum be a "Haunt of the Muses", such as Ptolemy Soter founded at Alexandria in 300 B. C.? Yes, it should be that, but it must be much more than that. It should be not only a place "dedicated to the cultivation of learning" and frequented by men and women devoted to learning and the improvement of human knowledge, but it should also be a treasure-house of specimens of the animals, plants and other natural objects of the world, and of objects illustrative of the life and activities of the races of men.

Museums, in the modern sense of the word, had their origin in the effort to preserve and care for rare and curious objects which travelers brought home from distant parts of the world. Collecting of rare and strange objects was first raised to the dignity of a fine art in Italy. The Medici at Florence and the Estes in Modena were the first; they set the example which in time spread throughout Europe.

But the collectors of those days were rarely imbued with the scientific, or even educational spirit; their motives were largely selfish, or would be so regarded in our day. They were usually wealthy and cultivated amateurs who assembled and maintained collections for their own pleasure and glorification. It was not until 1753—just 100 years before the founding of the California Academy of Sciences—when the British Museum was established at Bloomsbury and the collections of Sir Hans Sloane acquired, that the idea of a public museum emerged. It was then realized, apparently for the first time, that a museum, to advance art and scientific knowledge, must be liberally endowed, or else fostered by the State. And it was not long ago that museums first began to realize that they have a double duty to perform.

The Museum of this Academy, speaking broadly, has two primary functions. In the first place, it must furnish materials and facilities for research, and men to carry on the research work. While its legitimate field is not limited by geographic boundaries or to particular subjects in the realm of science, it is particularly appropriate that it should concern itself with problems concerning the natural history, geology, and anthropology of the Pacific coast of the Americas and of the Pacific islands. The problems within these fields are many and tremendously important. Their study will result in many valuable contributions to human knowledge. The collections which would be made in connection with these investigations will add greatly to the Museum's treasures. Those that would be obtained from the islands of the Pacific would make it possible to build up here in San Francisco a great Polynesian Museum. San Francisco is the logical place for such a museum. It should be the ambition of the California Academy of Sciences and the people of California to build up such a museum. Such an undertaking should receive substantial encouragement.

And the research collections of the animals and plants, of the geology, paleontology, and the native races of western America and of the Pacific Ocean and its islands, should be comprehensive and ample for the investigator's use.

Then there is the educational obligation which the Academy owes to the public and the state. This obligation can be met

in a number of ways, a few of which may be briefly mentioned here. In the first place, the Academy must instal and maintain in its Museum objects and groups of objects that are educative in character; that will teach definite lessons; and they must be displayed in such manner as will enable the visitor readily to gain the knowledge which the exhibit is meant to impart. And right there is a vital point: the object must be displayed in a way which will enable the visitor to understand the lesson it is meant to teach. To be sure, the collections must be properly labelled and placed in good light, but that is not enough. The arrangement and the grouping must be considered. And there must be intelligent, sympathetic interpreters or guides whose appreciation of the lessons to be taught, and whose enthusiasm will become contagious as the exhibits are explained to the visitors. The visitors will thus get the most out of what they see. Among exhibits that can be made of the greatest popular interest and highest educational value are the large habitat groups of California animals to which reference has already been made. Added to these there should be seasonal groups of birds and other animals, in which the animals will be shown in natural surroundings as they appear at different seasons of the year. For example, there should be four seasonal groups of the birds of the vicinity of San Francisco, one showing the winter species under winter conditions, and one for each of the other seasons. Similar groups of ptarmigan, snowshoe rabbits, deer and other animals will be provided.

Then there is the Lowe collection of Indian baskets, pottery and other objects of Indian manufacture and use now ready to instal, a collection that has great educational value.

And still another now available is the Henry Hemphill conchological collection of marine, freshwater and land shells, especially rich in west coast species, and very valuable not only for exhibition purposes but also for research.

Then, in addition to the large habitat and ecological groups, the museum must contain small groups or family groups of small animals of special interest and educational value. These groups should be many in number because the lessons are many and important which can best be taught by them. And a well-appointed museum will make it possible for every child in

the city, or any child who can come to the museum, to see and study and understand these specimens.

It seems to me that the educational function of our museum is the thing we now should emphasize and make provision for. It has been too long neglected. There are various ways, in addition to the one already dwelt upon, through which this purpose of the museum can be realized. I may be permitted to mention a few of them:

A carefully thought-out method of cooperation with the public and private schools must be provided. In the preparation of exhibition material provision should be made for exhibits that will meet the needs of children of each of the school grades. There should be exhibits that even first and second grade children, as well as those of the higher grades, can understand, and which will teach them definite lessons. And there should be exhibits adapted to each of the eight grades and to the high school.

There should be maintained at the museum throughout the school year courses of lectures on natural history and related subjects, such as should form a part of the regular school curriculum. These lectures should be given daily. They would be adapted to the needs of the various grades. They should relate to subjects for which the museum possesses in its collections illustrative materials. The museum should also provide carefully selected stereopticon slides, moving pictures, transparencies, photographs, and other educational aids for use in its educational work.

The museum should begin as soon as possible to provide loan collections to send out to the schools. These should be small habitat groups and specimens of the smaller birds, mammals, reptiles, batrachians, fishes, insects, minerals, plants, and other natural objects which can be put up in portable cases of a form and size convenient for handling. It is believed this will prove to be one of the most effective methods of cooperation with the public schools.

Another way in which the museum can be of benefit to the schools is by encouraging the teachers in the schools to visit the museum and make use of its materials, and by encouraging its curators and others connected with the museum to give lectures before schools, teachers, and educational organizations

on subjects in which they are specialists. These lectures may be given either in the schools or at the museum, or wherever circumstances may require.

The museum must be a *public* museum. We have long had public schools designed to prepare our children for rational living and good citizenship. A little later public libraries came to be considered as a necessary part of the educational plant. If *public schools* and *public libraries, why not public museums?*

Every city, town and community in the land taxes itself heavily to support the public schools. Many do the same for public libraries. A few, a very few as yet, tax themselves to support public museums. But the time is not far distant, I verily believe, when the public museum will be recognized as an essential part of the educational equipment of every town and city.

Now, all this means money and men. A great museum can not be built up nor maintained without funds and men.

Provision must be made for the expenses of field work, of exploration and research. And the museum must have adequate funds and an adequate force of experts to prepare the habitat groups and the other exhibition material, the loan collections, the transparencies, the photographs and stereopticon slides; to care for the research and other collections; to do the research work; and to do the multitude of things which must be done in any live, growing, efficient museum.

Undoubtedly the best way to build up and maintain a great museum is by means of large general and specific endowments which yield definite annual incomes to be devoted to specific purposes. Among the endowments which the California Academy of Sciences should receive the following may be mentioned:

1. *An Endowment for Exploration and Research.*

This endowment should be in a sum of not less than $2,500,000 that would yield an income of, say, $100,000, to be devoted to exploration and investigation of the zoology, botany, geology, and anthropology of the Pacific coasts of the Americas and the islands of the Pacific. The need for this endowment is urgent, for the native races of these regions

and their works are passing, and the studies must be undertaken before it is too late.

A great Polynesian museum should be built up here in San Francisco. This is the logical place for such a museum. It should contain great research collections of the animals and plants and minerals of all the countries bordering on the Pacific, but there should also be well selected exhibits showing the natural and manufactured products of all these countries, displayed after the manner followed in the great commercial museums of the world. Such exhibits would serve to call the attention of men of business to the commercial products and possibilities of the various countries concerned, and would do much toward bringing the trade of those countries to San Francisco. The possibilities along this line can scarcely be overestimated.

2. *An Educational Extension Endowment.*

This endowment should be $250,000 and yield an annual income of about $10,000, to be used in the preparation of loan exhibits and collections to send out to the public and private schools; in the maintenance of courses of lectures at the museum and in the schools, on subjects adapted to the needs and understanding of the children of the different grades; in the preparation of stereopticon slides, photographs, transparencies, and moving pictures, relating to the various branches of elementary science which properly form parts of a well-balanced school curriculum; in short, to provide for cooperation between the museum and the public schools.

It is believed this is one of the most useful activities in which the museum can engage.

Recently Mr. N. W. Harris of Chicago gave to the Field Museum of Natural History a quarter of a million dollars as an endowment for this purpose. It is known as "The N. W. Harris Public School Extension of Field Museum of Natural History." It yields an annual income of $12,000, all of which is devoted to cooperation with the public schools of Chicago. Cannot a similar fund be secured for similar work in California? Is there not some one who is interested in education who is able and willing to do as much for San Francisco?

3. *A Library Endowment.*

A great library of the natural and physical sciences should be built up here in San Francisco. A large endowment is necessary; but for the present, if an endowment of not less than $200,000 can be secured the immediate needs would be fairly well met. The income from this fund, amounting to $8,000 to $10,000 would be used in the purchase of books, pamphlets and periodicals, for binding, and other expenses incident to building up and maintaining the library.

4. *Publication Fund.*

The publication fund of the Academy has never been adequate. It is very inadequate now. Papers of the highest scientific value have to be refused every year because of lack of funds for their publication. Because of the lack of funds the Academy has never been able to use the durable paper for the text and for the illustrations which the high value of its publications demands. Papers of the greatest value have been printed on paper that will probably not last fifty years. An endowment of $100,000 would be of very great help in enabling the Academy to print its publications in proper form and to maintain its Proceedings at a high standard of excellence.

In addition to these large and urgently important needs of the Academy, there are many smaller special needs. Each of the departments in the Academy has, and will always have, need for funds for special investigations. There are, for example, special problems which the department of geology is interested in and which it would like to undertake to solve. And the same is equally true of the other departments, particularly of botany, herpetology, invertebrate paleontology, invertebrate zoology, ornithology, entomology, and mammalogy. There should be small endowments for each of these departments in order that each may be assured of a reasonable sum for field work every year.

President Grunsky has called attention to the Academy's immediate need of not less than a million dollars for completing the museum building in all its units as originally designed and as urgently needed. The west wing now nearing completion will be inadequate to house the collections that the Academy

already possesses, to say nothing of the space needed for the expected immediate rapid growth of the museum.

I have said nothing about the need of a great aquarium in this city in which may be shown the food and game fishes and the myriads of other fishes and other life of our rivers and lakes and of the sea. Such an aquarium is sure to come. Now is the opportune time seriously to consider its establishment. The Academy of Sciences stands ready to render any service it can in this matter.

I have mentioned a few of the things which the California Academy of Sciences ought to do and which it can do if it receives the support from the public which it should receive. There are many other scientific and educational activities in which it will doubtless engage in due time.

The total of the endowments and gifts needed by the Academy is big. But the problems are big, and the educational, scientific, and material benefits that will come to San Francisco and the entire Pacific coast will be of inestimable value.

Recently I compiled a statement showing the amounts given by public spirited citizens of the United States for educational and scientific aid and endowments as noted in the weekly journal, *Science,* for the period from March to December, 1914. The total is nearly $77,000,000. Practically all of this enormous amount was given by men and women in the east and to museums and other educational institutions east of the Rocky Mountains.

No one believes that the men and women of wealth of the west coast of America are less appreciative of science and the educational value of the physical and biological sciences than are the people of the east. It is believed, that, when the matter is presented to them frankly and clearly, they will come forward and enable the Museum of the California Academy of Sciences to take rank with the greatest museums of the east.

There is one other matter to which I wish to call particular attention at this time. It is this: The new Museum should contain a Children's Room in which will be displayed natural history objects such as are particularly attractive and interesting to young children. There would be in this room brightly and curiously colored birds and butterflies, moths and beetles

and other insects; curious animals of other groups; attractive minerals, growing plants, and aquariums with interesting animal and plant life; colored transparencies of beautiful native flowers, all selected and arranged with reference to the telling of an interesting story, of teaching a definite lesson.

And there will be in this Children's Room a Children's Reading Room in which will be found a library of the interesting and reliable nature books and helps to nature study.

And there will be in charge of this Children's Room a well-educated, kindly, sympathetic woman, who knows animals and plants; who knows the specimens in the museum and the live things in the park about it; and who, above all, knows and loves children; a woman who can wisely direct the observation and the reading of the children so that they may correlate their reading with what they have seen in the museum or in the open, and thus *increase* rather than *stifle* their love of animate things, as our public schools almost invariably do. It will be arranged so that children of the different grades will come to this room at different hours, and receive the instruction and help adapted to their respective needs.

And all this will be done and done soon, I confidently believe. It will be done because it so evidently appeals to us all as being the *right thing to do,* the right sort of education and training to give our children. It will be done, because the beauty of it all, for the little children's sake, will appeal to someone who has prospered in this world; someone with a kindly heart, who loves children, and who wants to help them to become the men and women they should become; and some day that man will come forward and, out of his abundance, he will make it possible for the California Academy of Sciences to do this splendid work for the children of California, not only of today but for those of the years to come.

APPENDIX TO DIRECTOR'S REPORT

LIST OF ACCESSIONS TO THE MUSEUM, 1914

Arnold Arboretum, Jamaica Plain, Mass.: A collection of 188 sheets of herbarium specimens, chiefly cultivated shrubs.

Baker, Dr. Fred and Dr. Charlotte, San Diego, Cal.: Twelve hundred specimens from Japan all carefully identified by local botanists and labelled.

Basel Museum, Basel, Switzerland: Three reptiles and batrachians from Canary Islands, 3 from Ceylon, one reptile from New Hebrides Islands, and one each from China and Algeria, 2 from Loyalty Islands and 4 from New Caledonia. Exchange.

Beck, Mrs. R. H., Berryessa, Cal.: A small collection of insects from the west coast of South America. Purchase.

Bekeart, Phil B., San Francisco: Medallion portrait of Col. Samuel Colt.

Bliss, W. D., Truckee, Cal.: One flying squirrel.

Bolton, Arthur L., California Academy of Sciences: Several specimens of plants from southeastern Arizona, among them two species that appear to be new.

Brimley, C. S., Raleigh, N. C.: Sixteen batrachians from North Carolina, one from Alabama, two from the Bahamas, 7 reptiles and batrachians from Florida, 9 from Mexico and 10 from Panama, and 6 reptiles from Michigan. Exchange.

British Museum, London: One reptile each from Senagambia, Gold Coast of Africa, and South America. Exchange.

Brizini, Lieut., Manila, P. I.: One reptile from Philippine Islands.

Carlson, John I., California Academy of Sciences: A small collection of insects from southern California.

Carlson, John I., California Academy of Sciences: Sixty-nine specimens of reptiles and batrachians from Arizona and 36 from California.

Carlson, John I., California Academy of Sciences: A collection of 94 sheets of herbarium specimens from Tucson and Agua Caliente, Arizona, and from Santa Catalina Island, California.

Coker, Dr. Robert E., U. S. Biological Station, Fairport, Iowa: A collection of 423 shells representing 116 species of freshwater mussels *(Unionidæ)*, chiefly from the Mississippi Valley.

Coombes, Mrs. A. L., San Francisco: Twenty-four specimens of plants from southern Oregon.

Davidson, Thomas, San Francisco: A large collection of minerals formerly belonging to the late Professor George Davidson.

Dickerson, Dr. Roy E., California Academy of Sciences: A collection of about 40 species of fossils from the Eocene of Marysville Buttes.

Dudley Herbarium, Stanford University, Cal.: A collection of 178 sheets of plants, chiefly Californian.

Duncan, Carl B., Fresno, Cal.: Eight reptiles and batrachians from Fresno, Cal.

Duncan, Carl B., Fresno, Cal.: One bat.

Eastwood, Miss Alice, California Academy of Sciences: About 400 specimens of plants representing 96 additions to the herbarium with many duplicates, from Byron Springs and Antioch, Cal.; 500 plants with 110 additions, from the lower San Joaquin Valley; 112 from Mt. Rainier; 23 from Steilacoom, Wash.; 9 from Portland, Ore.; about 8000 specimens representing 1013 additions resulting from the Eastwood Yukon-Alaska expedition financed by Professor C. S. Sargent, head of the Arnold Arboretum; and many specimens of exotic plants from the region around San Francisco.

Edmands, W. O., Upper Lake, Cal.: Skull of a Kodiak bear.

Ehrhorn, Adolph, San Francisco: A rawhide trunk from Peru, S. A.

Evermann, Dr. Barton W., California Academy of Sciences: Nine reptiles and batrachians from Ventura and Kern counties, Cal.

Evermann, Dr. Barton W., California Academy of Sciences: Skull of a chipmunk, *Eutamias merriami,* taken from a rattlesnake *(Crotalus oregonus)* in the Yosemite Valley.

Evermann, Dr. Barton W., California Academy of Sciences: Thirty sheets of herbarium specimens from Ventura and Kern counties, California.

Evermann, Dr. Barton W., California Academy of Sciences: A collection of Lower Miocene fossils from Ventura County, Cal.

Fitzhugh, Hon. Wm. M., San Francisco: The Lowe collection of Indian baskets, pottery, blankets, and miscellaneous objects of Indian manufacture and use. An indefinite loan.

Fuchs, Charles, California Academy of Sciences: Seven reptiles and batrachians, from Alameda and Napa counties, Cal.

Gifford, E. W., Affiliated Colleges, San Francisco: One snake from Santa Clara County, Cal.

Green, Chas. E., San Francisco: A Beck microscope, with numerous objectives and accessories.

Greene, Dr. Edward L., Washington, D. C.: Fifty specimens of western plants, including some duplicates of his types.

Henry, Professor J. K., Vancouver, B. C.: A collection of fifty plants from the vicinity of Vancouver.

Henshaw, H. W., Biological Survey, Washington, D. C.: A collection of 278 specimens representing 28 genera and 75 species of ferns chiefly from Massachusetts and the vicinity of Washington, D. C.

Hosmer, Mrs. Charlotte, Oakland, Cal.: The Henry Hemphill collection of marine, freshwater and land shells, embracing more than 60,000 specimens representing more than 12,000 species.

Kellers, Dr. H. D., U. S. Navy: A collection of 56 sheets of herbarium specimens from St. Paul Island, Bering Sea.

Kusche, J. Aug., Eldridge, Cal.: Twenty-three specimens of reptiles and batrachians, from Los Angeles County, Cal.

Lockwood, A. D., San Francisco: Suit of Chinese armor.

Mailliard, John W., San Francisco: A collection of 34 mounted specimens representing 24 species of winter birds of Marin County, Cal.

Mailliard, Joseph, San Francisco: A ball of crude rubber from Peru, S. A.

Martin, Bruce, Lorica, Colombia, S. A.: A small collection of insects, mostly beetles, from Colombia, S. A.

Martin, Bruce, Lorica, Colombia, S. A.: Several hundred specimens representing about 200 species of fossils from the Tejon of California.

Merrill, E. D., Philippine Bureau of Science, Manila, P. I.: Three hundred specimens of Philippine plants.

Michigan, University of, Ann Arbor, Mich.: Eight reptiles from Michigan and two batrachians from Illinois. Exchange.

Museum of Comparative Zoology, Cambridge, Mass.: Thirty-one reptiles and batrachians from West Africa, 4 from Ecuador, 150 from the West Indies, 3 batrachians from East Africa, 22 from Florida, 10 from Massachusetts, 36 from Chile, 2 reptiles from North Africa, one from Ceylon, 4 from Brazil, and 5 from Panama. Exchange.

National Herbarium, Washington, D. C.: Seventy specimens of plants from the Mississippi Valley, a duplicate set of the Eggert collection.

Newell, Mrs. Gwendolan, San Francisco: A collection of 150 sheets of herbarium specimens from Los Gatos, Santa Barbara, and Fort Bragg, Cal.

Percy, Earl N., Standard Oil Co., San Francisco: Two hundred feet of moving picture film showing California Valley elk.

Phelps, Mrs. Kate Eastwood, Denver, Colo.: A collection of 90 sheets of herbarium specimens from Silver Lake, near Boulder, Colorado.

Ray, Milton S., San Francisco: One reptile from Napa Co., Cal.

Rixford, G. P., San Francisco: Thirty-five specimens of plants, chiefly rare exotics cultivated in California.

Rothschild, Hon. Walter, Tring, England: One tortoise shell from Madagascar, and seven casts of Galapagos and Madagasear gigantic tortoises. Exchange.

Rowley, John, California Academy of Sciences: A collection of 76 mammal skins chiefly from Kern County, Cal.

Rowley, John, California Academy of Sciences: Seventeen skins of birds from Kern County, Cal.

Sargeant, Jr. W. W., San Francisco: Two reptiles from San Francisco, Cal.

Slevin, J. R., California Academy of Sciences: Five batrachians from Washington, and 138 reptiles and batrachians from Kern and San Francisco counties, Cal.

Slevin, J. R., California Academy of Sciences: A small series of insects from Washington.

Smith, L. E., Sisson, Cal.: Eight hundred specimens of plants representing 186 additions to the herbarium, the rest being duplicates to be used in exchange. These were collected in northern California and chiefly in the upper Sacramento valley.

Tevis, Lansing K., San Francisco: Two specimens of a Javanese peacock.

Tracy, Mrs. William, Buttonwillow, Cal.: Two ostrich eggs.

Van Denburgh, Dr. John, California Academy of Sciences: One reptile from Santa Clara County, Cal.

Van Dyke, Dr. Edwin C., California Academy of Sciences: Forty-six batrachians from Washington; 4 reptiles and batrachians from Oregon.

Van Dyke, Dr. Edwin C., California Academy of Sciences: A considerable collection of miscellaneous insects from Washington, Oregon and California.

Wilkens, Mrs. J. E., San Francisco: Two reptiles from San Francisco.

LIST OF DONATIONS TO THE LIBRARY, 1914

Baker, Dr. Fred, San Diego, Cal.: Eight pamphlets.

Berry, S. Stillman, Redlands, Cal.: Twenty-two pamphlets.

Cobb, W. Bruce: One volume.

Crocker, Wm. H., San Francisco: Two volumes, Birds of New York.

Eimbeck, Wm., through Capt. Ferdinand Westdahl, San Francisco: A miscellaneous collection of more than 200 books and pamphlets.

Evermann, Dr. Barton W., San Francisco: A complete bound set (13 volumes) Proceedings of the Washington Academy of Sciences, and a copy of American Food and Game Fishes.

Farlow, Prof. W. G., Cambridge, Mass.: About 40 early numbers of the Proceedings of the California Academy of Sciences.

Gray Herbarium, Harvard University: One hundred and eighty pamphlets including many papers by Professor Asa Gray and Professor Sereno Watson.

Green, C. E., San Francisco: Four portraits.

Holmes, Prof. S. J., Berkeley, Cal.: Three pamphlets.

Jones, R. L.: Life of J. Clancy Jones, 2 volumes.

Kahn, Hon. Julius, San Francisco: The Laws of Alaska.

Loomis, Leverett Mills, San Francisco: One book and 53 pamphlets.

Mailliard, Joseph, San Francisco: The Native British Ferns, and 30 pamphlets.

Manson, Dr. Marsden, Bellota, Cal.: One pamphlet.

Martin, Bruce, Lorica, Colombia, S. A.: One volume.

Meinecke, Dr. E. P., San Francisco: One pamphlet.

Mexico, National Museum of: Two volumes.

Mills College, Margaret Carnegie Library of, Mills College, Cal.: One volume.

National Museum, Washington, D. C.: Five pamphlets, Contributions to the National Herbarium.

Royal Botanical Gardens, Kew, England: Nine bulletins.

Schaller, Dr. W. T., U. S. Geological Survey, Washington, D. C.: Two mineralogical papers.

Smith, Prof. J. Perrin, Stanford University, Cal.: Four pamphlets.

Thompson, Dr. J. C., U. S. Navy: Three pamphlets.

Torrey Botanical Club, New York City: Twelve copies of Torreya.

Van Denburgh, Dr. John, San Francisco: Two pamphlets.

Wilson, Guy W., New Brunswick, N. J.: Seven pamphlets.

Wistar Institute: Thirty-one numbers of the Journal of Morphology.

Zoological Society of New York, New York City: Seven pamphlets.

PROCEEDINGS

Fourth Series

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Expedition of the California Academy of Sciences to the Galapagos Islands, 1905-1906.

Pages 1–6. I. Preliminary Description of Four New Races of Gigantic Land Tortoises from the Galapagos Islands. By John Van Denburgh. (*Issued December 20, 1907*)..... $ .25

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Pages 323–374. IV. The Snakes of the Galapagos Islands. By John Van Denburgh. Plates XXII–XXX. (*Issued January 17, 1912*) .50

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Pages 405–430. VI. The Geckos of the Galapagos Archipelago. By John Van Denburgh. (*Issued April 16, 1912*) ..... .35

Pages 431–446. VII. Notes on the Lichens of the Galapagos Islands. By Alban Stewart. (*Issued December 17, 1912*)..... .25

VOLUME II, PART I

Expedition of the California Academy of Sciences to the Galapagos Islands, 1905-1906.

Pages 1–132. VIII. The Birds of the Galapagos Islands, with Observations on the Birds of Cocos and Clipperton Islands (Columbiformes to Pelecaniformes). By Edward Winslow Gifford. Plates I–VII. (*Issued August 11, 1913*)..... 1.00

Pages 133–202. IX. The Galapagoan Lizards of the Genus Tropidurus; with Notes on the Iguanas of the Genera Conolophus and Amblyrhyncus. By John Van Denburgh and Joseph R. Slevin. Plates VIII–XI. (*Issued September 19, 1913*). .50

Pages 203–374. X. The Gigantic Land Tortoises of the Galapagos Archipelago. By John Van Denburgh. Plates 12–124. (*Issued September 30, 1914*)..... 2.00

VOLUME III

Pages 1–40. A Further Stratigraphic Study in the Mount Diablo Range of California. By Frank M. Anderson. Plate I. (*Issued October 31, 1908*)..... .35

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Pages 155–160. Notes on Some Reptiles and Amphibians from Oregon, Idaho and Utah. By John Van Denburgh. (*Issued January 17, 1912*) ..... .25

Pages 161–182. Geologic Range of Miocene Invertebrate Fossils of California. By James Perrin Smith. (*Issued April 5, 1912*)... .25

Pages 183–186. Description of a New Genus and Species of Salamander from Japan. By Surgeon J. C. Thompson, U. S. Navy. Plate XIV. (*Issued May 3, 1912*) ..... .25

Pages 187–258. Concerning Certain Species of Reptiles and Amphibians from China, Japan, the Loo Choo Islands, and Formosa. By John Van Denburgh. (*Issued December 16, 1912.*)..... .50

Pages 259–264. Notes on Ascaphus, the Discoglossoid Toad of North America. By John Van Denburgh. (*Issued December 21, 1912*)..... .... .25

Pages 265–390. A Distributional List of the Mammals of California. By Joseph Grinnell. Plates XV–XVI. (*Issued August 28, 1913*) 1.00

Pages 391–454. A List of the Amphibians and Reptiles of Arizona, with Notes on the Species in the Collection of the Academy. By John Van Denburgh and Joseph R. Slevin. Plates XVII–XXVIII. (*Issued November 5, 1913*) ..... .75

VOLUME IV

Pages 1–13. I. Report of the President of the Academy for the Year 1913.

II. George Davidson. (*Issued April 8, 1914*) ..... .25

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